

CLAIMS

1. Electrically conducting, magnetic powder (1) comprising or made of electrically conducting and magnetic particles (2).

2. The powder according to claim 1,
characterised in
that the particles (2) are pre-magnetised so that they mutually attract.

3. The powder according to claim 1 or claim 2,
characterised in
that the particles (2) have an average grain size which is smaller than 50 µm or smaller than 40 µm or smaller than 35 µm.

4. The powder according to any one of claims 1 to 3,
characterised in
that the particles (2) are constructed as substantially spherical.

5. The powder according to any one of claims 1 to 4,
characterised in
that the electrically conducting, magnetic particles
(2) have an electrically conducting coated magnetic
core (4).

6. The powder according to claim 5,
characterised in
that the magnetic cores (4) consist of an electrically
non-conducting material.

7. The powder according to claim 5 or claim 6,
characterised in
that the magnetic cores (4) consist of ferrite.

8. The powder according to any one of claims 5 to 7,
characterised in
that the magnetic cores (4) are coated with carbon or
with a metal.

9. The powder according to any one of claims 1 to 8,
characterised in

that the particles (2) are inserted in a carrier liquid (3) to form an electrically conducting, magnetic liquid (1').

10. The powder according to claim 9,
characterised in
that the carrier liquid (3) is electrically non-conducting and/or non-magnetic.
11. The powder according to claim 9 or claim 10,
characterised in
that the carrier liquid (3) is an oil.
12. The powder according to any one of claims 9 to 11,
characterised in
that the carrier liquid (3) has a relatively high surface tension.
13. The powder according to any one of claims 9 to 12,
characterised in
that the carrier liquid (3) is a non-migrating oil.

14. Use of an electrically conducting, magnetic powder (1), especially according to any one of claims 1 to 13, in an electrical component (6) for transferring an electrical signal and/or an electric voltage and/or an electric current between at least two electric contacts (12, 13).

15. An electrical component, especially a switch or potentiometer (6),
 - wherein the component (6) has at least two electrical contacts (12, 13),
 - wherein the component (6) has a transfer volume (11) comprising an electrically conducting, magnetic powder (1), especially according to any one of claims 1 to 13, or an electrically conducting, magnetic liquid (1'), especially according to any one of claims 9 to 13, for transferring an electrical signal and/or an electric voltage and/or an electric current between two of the contacts (12, 13),
 - wherein the component (6) has an actuating device (15) which, when actuated, displaces the transfer volume (11) by means of magnetic forces (14) relative to the contacts 12, 13).

16. The component according to claim 15,
characterised in
 - that the contacts (12, 13) and the transfer volume (11) are arranged in a casing (20),
 - that the actuating device (15) is arranged outside on the casing (20) or outside the casing (20),
 - that at least one wall (21) of the casing (20) is constructed as permeable for the magnetic forces (14) of the actuating device (15).

17. The component according to claim 15 or claim 16,
characterised in
that the actuating device (15) has an actuator (16) which has at least one magnet (18) for generating the magnetic forces (14) and is displaceable along a pre-determined displacement path for the actuating volume (11) relative to the contacts (12, 13).

18. The component according to claims 16 and 17,
characterised in
that the actuator (16) is displaceable along the casing (20) without contact.

19. The component according to claim 15 or claim 16,

characterised in

that the actuating device (15) has a magnetic force generator which is constructed in the fashion of a linear motor, which extends along a pre-determined displacement path for the actuating volume (11) and is used to generate magnetic forces (14) which drive the actuating volume (11) along the displacement path.

20. The component according to any one of claims 15 to 19,

characterised in

- that the component is a potentiometer (6) whose collector track (13) and resistance track (12) respectively form a contact,
- that the collector track (13) and resistance track (12) are arranged adjacent to one another without contact,
- that the actuating volume (11) interconnects the collector track (13) and the resistance track (12),
- that the relative position of the transfer volume (11) along the collector track (13) and along the resistance track (12) can be adjusted with the actuating device (15).

21. The component according to any one of claims 15 to 20,
characterised in

that the component (6) is a member of the following
group of components: potentiometer, sealed
potentiometer, potentiometer with built-in switch,
switch, sealed switch, limit switch, proximity switch,
step switch, incremental encoder, absolute encoder,
relay, sealed relay.

22. Electrically conducting, magnetic liquid comprising a
carrier liquid (3) containing a powder (1) according
to any one of claims 1 to 13.